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TECH CENTER 1600/2900

## SEQUENCE LISTING

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10 <130> 2290.00101

<140> 09/710,262  
<141> 2000-11-10

15 <160> 20

<170> PatentIn Ver. 2.1

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30 Ile Val Pro Ser Gly Gln Val Ser Ala Glu Val His Glu Val Pro Ser  
35 40 45

E Val Ser Asp Ser Ala Leu Val Ala Thr Leu Arg Ala Ser Ala Lys Val  
35 50 55 60

Pro Phe Asp Leu Ala Cys Gly Pro Leu Ala Arg Leu His Leu Tyr Ser  
65 70 75 80

40 Arg Ser Glu His Glu His Val Leu Leu Leu Cys Phe His His Leu Val  
85 90 95

Leu Asp Gly Ala Ser Val Ala Pro Leu Leu Asp Ala Leu Arg Glu Arg  
100 105 110

45 Tyr Ala Gly Thr Glu Ala Lys Ala Gly Leu Leu Glu Val Pro Ile Val  
115 120 125

sub E1 50 Ala Pro Tyr Arg Ala Ala Val Glu Trp Glu Gln Leu Ala Ile Gly Gly  
130 135 140

Asp Glu Gly Arg Arg His Leu Asp Tyr Trp Arg His Val Leu Ala Thr  
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55 Pro Val Pro Pro Pro Leu Asn Leu Pro Thr Asp Arg Pro Arg Ser Ala  
165 170 175

Thr Gly Leu Asp Ser Glu Gly Ala Thr His Ser Gln Arg Val Pro Thr  
180 185 190

60 Glu Gln Ala Leu Arg Leu Arg Glu Phe Ala Arg Ala Gln Gln Val Ser

|    | 195   | 200         | 205                                 |
|----|---|-------------|-------------------------------------|
|    | Leu Pro Thr Val   | Leu Leu Gly | Leu Tyr Tyr Ala Leu Leu His Arg His |
|    | 210   | 215         | 220                                 |
| 5  | Thr Arg Gln Asp Asp Val Val Val Gly Ile Pro Thr Met Gly Arg Pro |             |                                     |
|    | 225   | 230         | 235 240                             |
| 10 | Arg Ala Glu Leu Ala Thr Ala Ile Gly Tyr Phe Val Asn Val Met Ala |             |                                     |
|    | 245   | 250         | 255                                 |
|    | Val Arg Ala Arg Gly Leu Gly Gln His Ser Phe Gly Ser Leu Leu Arg |             |                                     |
|    | 260   | 265         | 270                                 |
| 15 | His Leu His Asp Ser Val Ile Asp Gly Leu Glu His Ala His Tyr Pro |             |                                     |
|    | 275   | 280         | 285                                 |
| 20 | Phe Pro Arg Val Val Lys Asp Leu Arg Leu Ser Asn Gly Pro Glu Glu |             |                                     |
|    | 290   | 295         | 300                                 |
|    | Ala Pro Gly Phe Gln Thr Met Phe Thr Phe Gln Ser Leu Gln Leu Thr |             |                                     |
|    | 305   | 310         | 315 320                             |
| 25 | Ser Ala Pro Pro Arg Pro Glu Pro Arg Ser Gly Gly Leu Pro Glu Leu |             |                                     |
|    | 325   | 330         | 335                                 |
|    | Glu Pro Leu Asp Cys Val His Gln Glu Gly Ala Tyr Pro Leu Glu Leu |             |                                     |
|    | 340   | 345         | 350                                 |
| 30 | Glu Val Val Glu Gly Ala Lys Gly Leu Thr Leu His Phe Lys Tyr Asp |             |                                     |
|    | 355   | 360         | 365                                 |
| 35 | Ala Arg Leu Tyr Glu Ala Asp Thr Val Glu Arg Met Ala Arg Gln Leu |             |                                     |
|    | 370   | 375         | 380                                 |
|    | Leu Arg Ala Ala Asp Gln Val Ala Asp Gly Val Glu Ser Pro Leu Ser |             |                                     |
|    | 385   | 390         | 395 400                             |
| 40 | Ala Leu Ser Trp Leu Asp Asp Glu Glu Arg Arg Thr Leu Leu Arg Asp |             |                                     |
|    | 405   | 410         | 415                                 |
| 45 | Trp Asn Ala Thr Ala Thr Pro Phe Leu Glu Asp Leu Gly Val His Glu |             |                                     |
|    | 420   | 425         | 430                                 |
|    | Leu Phe Gln Arg Gln Ala Arg Glu Thr Pro Asp Ala Met Ala Val Ser |             |                                     |
|    | 435   | 440         | 445                                 |
| 50 | Tyr Glu Gly His Ser Leu Ser Tyr Gln Ala Leu Asp Thr Arg Ser Arg |             |                                     |
|    | 450   | 455         | 460                                 |
|    | Glu Ile Ala Ala His Leu Lys Ser Phe Gly Val Lys Pro Gly Ala Leu |             |                                     |
|    | 465   | 470         | 475 480                             |
| 55 | Val Gly Ile Tyr Leu Asp Arg Ser Ala Glu Leu Val Ala Ala Met Leu |             |                                     |
|    | 485   | 490         | 495                                 |
|    | Gly Val Leu Ser Ala Gly Ala Ala Tyr Val Pro Leu Asp Pro Val His |             |                                     |
|    | 500   | 505         | 510                                 |
| 60 | Pro Glu Asp Arg Leu Arg Tyr Met Leu Glu Asp Ser Gly Val Val Val |             |                                     |
|    | 515   | 520         | 525                                 |

E!  
ant

Val Leu Ala Arg Gln Ala Ser Arg Asp Lys Val Ala Ala Ile Ala Gly  
530 535 540

5 Ala Ser Cys Lys Val Cys Val Leu Glu Asp Val Lys Ala Gly Ala Thr  
545 550 555 560

Ser Ala Pro Ala Gly Thr Ser Pro Asn Gly Leu Ala Tyr Val Ile Tyr  
565 570 575

10 Thr Ser Gly Ser Thr Gly Arg Pro Lys Gly Val Met Ile Pro His Arg  
580 585 590

15 Gly Val Val Asn Phe Leu Leu Cys Met Arg Arg Thr Leu Gly Leu Lys  
595 600 605

Arg Thr Asp Ser Leu Leu Ala Val Thr Thr Tyr Cys Phe Asp Ile Ala  
610 615 620

20 Ala Leu Glu Leu Leu Leu Pro Leu Cys Ala Gly Ala Gln Val Ile Ile  
625 630 635 640

Ala Ser Ala Glu Thr Val Arg Asp Ala Gln Ala Leu Lys Arg Ala Leu  
645 650 655

25 Arg Thr His Arg Pro Thr Leu Met Gln Ala Thr Pro Ala Thr Trp Thr  
660 665 670

30 Leu Leu Phe Gln Ser Gly Trp Glu Asn Ala Glu Arg Val Arg Ile Leu  
675 680 685

Cys Gly Gly Glu Ala Leu Pro Glu Ser Leu Lys Ala His Phe Val Arg  
690 695 700

35 Thr Ala Ser Asp Val Trp Asn Met Phe Gly Pro Thr Glu Thr Thr Ile  
705 710 715 720

Trp Ser Thr Met Ala Lys Val Ser Ala Ser Arg Pro Val Thr Ile Gly  
725 730 735

40 Lys Pro Ile Asp Asn Thr Gln Val Tyr Val Leu Asp Asp Arg Met Gln  
740 745 750

*E1*  
*cont*  
45 Pro Val Pro Ile Gly Val Pro Gly Glu Leu Trp Ile Ala Gly Ala Gly  
755 760 765

Val Ala Cys Gly Tyr Leu Asn Arg Pro Ala Leu Thr Ala Glu Arg Phe  
770 775 780

50 Val Ser Asn Pro Phe Thr Pro Gly Thr Thr Leu Tyr Arg Thr Gly Asp  
785 790 795 800

Leu Ala Arg Trp Arg Ala Asp Gly Glu Val Glu Tyr Leu Gly Arg Leu  
805 810 815

55 Asp His Gln Val Lys Val Arg Gly Phe Arg Ile Glu Met Gly Glu Ile  
820 825 830

60 Glu Ala Gln Leu Ala Gly His Pro Ser Val Lys Asn Cys Ala Val Val  
835 840 845

Ala Lys Glu Leu Asn Gly Thr Ser Gln Leu Val Ala Tyr Cys Gln Pro  
850 855 860

5 Ala Gly Thr Ser Phe Asp Glu Glu Ala Ile Arg Ala His Leu Arg Lys  
865 870 875 880

Phe Leu Pro Asp Tyr Met Val Pro Ala His Val Phe Ala Val Asp Ala  
885 890 895

10 Ile Pro Leu Ser Gly Asn Gly Lys Val Asp Arg Gly Gln Leu Met Ala  
900 905 910

Arg Pro Val Val Thr Arg Arg Lys Thr Ser Ala Val His Ala Arg Ser  
915 920 925

15 Pro Val Glu Ala Thr Leu Val Glu Leu Trp Lys Asn Val Leu Gln Val  
930 935 940

20 Asn Glu Val Gly Val Glu Asp Arg Phe Phe Glu Val Gly Gly Asp Ser  
945 950 955 960

Val Leu Ala Ala Val Leu Val Glu Glu Met Asn Arg Arg Phe Asp Thr  
965 970 975

25 Arg Leu Ala Val Thr Asp Leu Phe Lys Tyr Val Asn Ile Arg Asp Met  
980 985 990

Ala Arg His Met Glu Gly Ala Thr Ala Gln Ala Arg Thr Gly Ala Thr  
995 1000 1005

30 Glu Pro Ala Arg Glu Asp Thr Ala Ser Glu Arg Asp Tyr Glu Gly Ser  
1010 1015 1020

35 Leu Ala Val Ile Gly Ile Ser Cys Gln Leu Pro Gly Ala Ala Asp Pro  
1025 1030 1035 1040

Trp Arg Phe Trp Lys Asn Leu Arg Glu Gly Arg Asp Ser Val Val Ala  
1045 1050 1055

40 Tyr Arg His Glu Glu Leu Arg Glu Leu Gly Val Pro Glu Glu Val Leu  
1060 1065 1070

Arg Asp Ser Arg Tyr Val Ala Val Arg Ser Ser Ile Glu Asp Lys Glu  
1075 1080 1085

45 Cys Phe Asp Pro His Phe Phe Gly Leu Thr Ala Arg Asp Ala Ser Phe  
1090 1095 1100

Met Asp Pro Gln Phe Arg Leu Leu Leu Met His Ala Trp Lys Ala Val  
1105 1110 1115 1120

Glu Asp Ala Ala Thr Thr Pro Glu Arg Leu Gly Pro Cys Gly Val Phe  
1125 1130 1135

55 Met Thr Ala Ser Asn Ser Phe Tyr His Gln Gly Ser Pro Gln Phe Pro  
1140 1145 1150

Ala Asp Gly Gln Pro Val Leu Arg Thr Ala Glu Glu Tyr Val Leu Trp  
1155 1160 1165

60 Val Leu Ala Gln Ala Gly Ser Ile Pro Thr Met Val Ser Tyr Lys Leu

El  
Cont

|    | 1170  | 1175 | 1180      |
|----|---|------|-----------|
|    | Gly Leu Lys Gly Pro Ser Leu Phe Val His Thr Asn Cys Ser Ser Ser |      |           |
|    | 1185  | 1190 | 1195 1200 |
| 5  | Leu Ser Ala Leu Tyr Val Ala Gln Gln Ala Ile Ala Ala Gly Asp Cys |      |           |
|    | 1205  | 1210 | 1215      |
| 10 | Gln Thr Ala Leu Val Gly Ala Ala Thr Val Phe Pro Ser Ala Asn Leu |      |           |
|    | 1220  | 1225 | 1230      |
|    | Gly Tyr Leu His Gln Arg Gly Leu Asn Phe Ser Ser Ala Gly Arg Val |      |           |
|    | 1235  | 1240 | 1245      |
| 15 | Lys Ala Phe Asp Ala Ala Ala Asp Gly Met Ile Ala Gly Glu Gly Val |      |           |
|    | 1250  | 1255 | 1260      |
| 20 | Ala Val Leu Val Val Lys Asp Ala Ala Ala Val Arg Asp Gly Asp     |      |           |
|    | 1265  | 1270 | 1275 1280 |
|    | Pro Ile Tyr Cys Leu Val Arg Lys Val Gly Ile Asn Asn Asp Gly Gln |      |           |
|    | 1285  | 1290 | 1295      |
| 25 | Asp Lys Val Gly Leu Tyr Ala Pro Ser Ala Thr Gly Gln Ala Glu Val |      |           |
|    | 1300  | 1305 | 1310      |
|    | Ile Arg Arg Leu Phe Asp Arg Thr Gly Ile Asp Pro Ala Ser Ile Gly |      |           |
|    | 1315  | 1320 | 1325      |
| 30 | Tyr Val Glu Ala His Gly Thr Gly Thr Leu Leu Gly Asp Pro Val Glu |      |           |
|    | 1330  | 1335 | 1340      |
|    | Val Ser Ala Leu Ser Glu Ala Phe Arg Thr Phe Thr Asp Arg Arg Gly |      |           |
|    | 1345  | 1350 | 1355 1360 |
| 35 | Tyr Cys Arg Leu Gly Ser Val Lys Ser Asn Leu Gly His Leu Asp Thr |      |           |
|    | 1365  | 1370 | 1375      |
| 40 | Val Ala Gly Leu Ala Gly Leu Ile Lys Thr Ala Leu Ser Leu Arg Gln |      |           |
|    | 1380  | 1385 | 1390      |
|    | Gly Glu Val Pro Pro Thr Leu His Val Thr Gln Val Asn Pro Lys Leu |      |           |
|    | 1395  | 1400 | 1405      |
| 45 | Glu Leu Thr Asp Ser Pro Phe Val Ile Ala Asp Arg Leu Ala Pro Trp |      |           |
|    | 1410  | 1415 | 1420      |
|    | Pro Ser Leu Pro Gly Pro Arg Arg Ala Ala Val Ser Ala Phe Gly Leu |      |           |
|    | 1425  | 1430 | 1435 1440 |
| 50 | Gly Gly Thr Asn Thr His Ala Ile Leu Glu His Tyr Pro Arg Asp Ser |      |           |
|    | 1445  | 1450 | 1455      |
|    | Arg Pro Arg Glu Arg Ser Gln Arg Ser Asn Ala Val Arg Ala Val Ala |      |           |
|    | 1460  | 1465 | 1470      |
| 55 | Pro Phe Ser Ala Arg Thr Leu Glu Ala Leu Lys Asp Asn Leu Arg Ala |      |           |
|    | 1475  | 1480 | 1485      |
| 60 | Leu Leu Asp Phe Leu Glu Asp Pro Ala Ser Ala Glu Val Ala Leu Ala |      |           |
|    | 1490  | 1495 | 1500      |

El  
Cm

Asp Ile Thr Tyr Thr Leu Gln Val Gly Arg Val Ala Met Pro Glu Arg  
 1505 1510 1515 1520

5 Met Val Val Thr Ala Ser Thr Arg Asp Glu Leu Val Glu Gly Leu Arg  
 1525 1530 1535

Arg Gly Ile Ala Thr Val Gly Gly Ala His Val Gly Thr Val Val Asp  
 1540 1545 1550

10 Thr Ser Pro Ser Val Asp Ala Asp Ala Arg Ala Val Ala Glu Ala Trp  
 1555 1560 1565

15 Ala Thr Gly Asp Ser Ile Asp Trp Asp Ser Leu His Gly Asp Val Lys  
 1570 1575 1580

Pro Ala Arg Val Ser Leu Pro Thr Tyr Gln Phe Ala Lys Glu Arg Tyr  
 1585 1590 1595 1600

20 Gly Leu Ser Pro Ala His Ser Val Ala Asn Ser Ser Lys Thr His Pro  
 1605 1610 1615

Asp Ala Gly Val Pro Leu Phe Val Pro Thr Trp Gln Pro Trp Ser Glu  
 1620 1625 1630

25 Gly Ala Ser Asn Ala Ser Leu Ala Leu Arg His Leu Val Val Leu Cys  
 1635 1640 1645

30 Glu Pro Leu Asp Ala Leu Gly Ala Glu Gly Ala Ser Ala Leu Ala Ser  
 1650 1655 1660

Thr Leu Ala Asp Arg Arg Ile Glu Val Val Arg Thr Ser Ser Pro Ser  
 1665 1670 1675 1680

35 Ala Arg Leu Asp Ala Arg Phe Met Ala His Ala Ser Ala Val Phe Glu  
 1685 1690 1695

Arg Val Lys Ala Leu Leu Ser Glu Arg Leu Thr Ala Pro Val Thr Leu  
 1700 1705 1710

40 Gln Val Leu Val Pro Glu Glu Arg Asp Ala Leu Ala Leu Ser Gly Leu  
 1715 1720 1725

Gly Ser Leu Leu Arg Ser Val Ser Gln Glu Asn Pro Leu Val Arg Gly  
 1730 1735 1740

45 Gln Leu Ile Arg Val Gln Gly Ser Val Ser Ala Ser Ala Leu Val Asp  
 1745 1750 1755 1760

50 Val Leu Val Lys Ser Ala Arg Ala Gly Asp Val Thr Asp Ser Arg Tyr  
 1765 1770 1775

His Ala Gly Gln Leu Ser Arg Cys Glu Trp Arg Glu Ala Arg Val Ala  
 1780 1785 1790

55 Lys Gly Asp Ala Ser Arg Phe Trp Arg Glu Asp Gly Val Tyr Val Ile  
 1795 1800 1805

60 Ser Gly Gly Thr Gly Ala Leu Ala Arg Leu Phe Val Ala Glu Ile Gly  
 1810 1815 1820

E1  
 Cont

Lys Arg Ala Thr Arg Ala Thr Val Ile Leu Val Ala Arg Ala Ser Ser  
 1825 1830 1835 1840  
 5 Ala Glu Ala Val Asp Gly Gly Asn Gly Leu Arg Val Arg His Leu Pro  
 1845 1850 1855  
 Val Asp Val Thr Gln Pro Asn Asp Val Asn Ala Phe Val Ala Thr Val  
 1860 1865 1870  
 10 Leu Arg Glu His Gly Arg Ile Asp Gly Val Ile His Ala Ala Gly Ile  
 1875 1880 1885  
 Arg Arg Asp Asn Tyr Leu Leu Asn Lys Pro Val Ala Glu Met Gln Ala  
 1890 1895 1900  
 15 Val Leu Ala Pro Lys Val Val Gly Leu Val Asn Leu Asp His Ala Thr  
 1905 1910 1915 1920  
 20 Arg Glu Leu Pro Leu Asp Phe Phe Val Thr Phe Ser Ser Leu Ala Ala  
 1925 1930 1935  
 Phe Gly Asn Ala Gly Gln Ser Asp Tyr Ala Ala Ala Asn Gly Phe Met  
 1940 1945 1950  
 25 Asp Gly Phe Ala Glu Ser Arg Ala Ala Leu Val Asn Ala Gly Gln Arg  
 1955 1960 1965  
 Gln Gly Arg Thr Val Ser Ile Arg Trp Pro Leu Trp Glu Asn Gly Gly  
 1970 1975 1980  
 30 Met Gln Leu Asp Ser Arg Ser Arg Glu Val Leu Met Gln Arg Thr Gly  
 1985 1990 1995 2000  
 35 Met Ala Ala Leu Gly Asp Glu Ala Gly Leu Gly Ala Phe Tyr Arg Ala  
 2005 2010 2015  
 Leu Glu Leu Gly Ser Pro Gly Val Ala Val Trp Thr Gly Glu Ala Gln  
 2020 2025 2030  
 40 Arg Phe Arg Glu Leu Ser Val Ser Val Ser Pro Ala Pro Pro Pro His  
 2035 2040 2045  
 E1  
 Cont  
 45 Gln Val Ala Leu Asp Ala Val Val Ser Ile Thr Glu Lys Val Glu Thr  
 2050 2055 2060  
 Lys Leu Lys Ala Leu Phe Ser Glu Val Thr Arg Tyr Glu Glu Arg Arg  
 2065 2070 2075 2080  
 50 Ile Asp Ala Arg Gln Pro Met Glu Arg Tyr Gly Ile Asp Ser Ile Ile  
 2085 2090 2095  
 Ile Thr Gln Met Asn Gln Ala Leu Glu Gly Pro Tyr Asn Ala Leu Ser  
 2100 2105 2110  
 55 Lys Thr Leu Phe Phe Glu Tyr Arg Thr Leu Ala Glu Val Ser Gly Tyr  
 2115 2120 2125  
 Leu Ala Glu His Arg Ala Glu Glu Ser Ala Lys Trp Val Ala Ala Pro  
 2130 2135 2140  
 60 Gly Glu Asn Ser Ser Ser Val Ile Gln Glu Ala Arg Pro Pro Arg Ala

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 Asp Ala Thr His Arg Ala Pro Arg Ala Asp Glu Pro Ile Ala Val Ile  
                          2165                    2170                    2175  
 5 Gly Met Ser Gly Arg Tyr Pro Gly Ala Glu Asn Leu Thr Glu Phe Trp  
                          2180                    2185                    2190  
 10 Glu Arg Leu Ser Arg Gly Asp Asp Cys Ile Thr Glu Ile Pro Pro Glu  
                          2195                    2200                    2205  
 Arg Trp Ser Leu Asp Gly Phe Phe Tyr Pro Asp Lys Lys His Ala Ala  
                          2210                    2215                    2220  
 15 Ala Arg Gly Met Ser Tyr Ser Lys Trp Gly Gly Phe Leu Gly Gly Phe  
                          2225                    2230                    2235                    2240  
 Ala Asp Phe Asp Pro Leu Phe Phe Asn Ile Ser Pro Arg Glu Ala Thr  
                          2245                    2250                    2255  
 20 Ser Met Asp Pro Gln Glu Arg Leu Phe Leu Gln Ser Cys Trp Glu Val  
                          2260                    2265                    2270  
 25 Leu Glu Asp Ala Gly Tyr Thr Arg Asp Ser Leu Ala Gln Arg Phe Gly  
                          2275                    2280                    2285  
 Ser Ala Val Gly Val Phe Ala Gly Ile Thr Lys Thr Gly Tyr Glu Leu  
                          2290                    2295                    2300  
 30 Tyr Gly Ala Glu Leu Glu Gly Arg Asp Ala Ser Val Arg Pro Tyr Thr  
                          2305                    2310                    2315                    2320  
 Ser Phe Ala Ser Val Ala Asn Arg Val Ser Tyr Leu Leu Asp Leu Lys  
                          2325                    2330                    2335  
 35 Gly Pro Ser Met Pro Val Asp Thr Met Cys Ser Ala Ser Leu Thr Ala  
                          2340                    2345                    2350  
 40 Val His Met Ala Cys Glu Ala Leu Gln Arg Gly Ala Cys Val Met Ala  
                          2355                    2360                    2365  
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                          2385                    2390

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 gccgaggtcc acgaggttcc atcggtctcc gattcagcac tgggtggcgac cctgcgcgcc 180  
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|             |             |             |             |             |             |      |
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| cccgttcctc  | cgccgttgaa  | tcttccaacg  | gaccggcctc  | gctccgccac  | ggggctggac  | 540  |
| tcggagggag  | caacgcactc  | gcagaggggtg | cccaccgagc  | aagcattgcg  | actgcgcgag  | 600  |
| ttcgctcggg  | cacagcaagt  | gagcctgccg  | accgtcctgc  | tcgggctcta  | ctacgccttg  | 660  |
| cttcacgcgc  | acacgcgcca  | ggacgacgtg  | gtggtcggca  | tccccacat   | ggggcgggccc | 720  |
| cgggcggaac  | tggcgacggc  | gattgggtac  | ttcgtcaacg  | tgatggccgt  | gcgcgcgcgcg | 780  |
| ggcctggggc  | agcactcggt  | cggtcgcgtg  | ctgcgccacc  | tccacgactc  | ggtcatcgat  | 840  |
| ggcctggagc  | atgcccacta  | tcccttcccg  | cgagtgggtga | aggacctccg  | gctgtcgaat  | 900  |
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| agcgctccgc  | caaggccgga  | gcccaggctg  | ggcggttg    | cggagcttga  | gccgctcgac  | 1020 |
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| gctggcgcg   | cctacgtacc  | cctggaccgc  | gtgcaccccg  | aggaccggt   | gcggtacatg  | 1560 |
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| tggctcgacga | tggcgaaggt  | ctcggcctcg  | cgcccggtca  | ccattggaaa  | gccgatcgac  | 2220 |
| aacacgcagg  | tctacgtgct  | ggacgaccgg  | atgcagccgg  | tgcccatcgg  | tgtgccgggc  | 2280 |
| gagctgtgga  | ttgcggggcg  | gggcgtggcc  | tgcggttacc  | tcaaccggcc  | ggcgctgacc  | 2340 |
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| accgacctgt  | tcaagtacgt  | caatattcgc  | gacatggcgc  | gccacatgga  | gggcgcgacg  | 3000 |
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| cggctcgtcca | tcgaagacaa  | ggagtgttcc  | gaccgcgatt  | tcttcgggtc  | gacggcgcg   | 3300 |
| gacgcgtcct  | tcatggaccc  | gcagttccga  | ctggttgcga  | tgcacgcctg  | gaaggcagtg  | 3360 |
| gaagacgcgc  | cgacgacgcc  | tgagcgccct  | ggaccgtgcg  | gcgtcttcat  | gacggccagc  | 3420 |
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| ctgtccgcgc  | tgcactggc   | tcagcaggcc  | atcgacgcgc  | gagactgcca  | gacggcgctg  | 3660 |
| gtggggggcg  | ccacggctct  | cccttcggcg  | aacttgggtt  | atctgcacca  | gcgggggctc  | 3720 |
| aacttctcca  | gcgcggggcg  | ggtcaaggcc  | ttcgacgcgc  | cggcggaacg  | catgattgcc  | 3780 |
| ggtgaagggt  | tcgccgtgct  | ggtgggtgaag | gacgcgcgag  | cggcggtgcg  | cgatggcgac  | 3840 |
| ccaatctact  | gcctcgtgcg  | gaagggtggg  | atcaacaacg  | acggccagga  | caagggtgggt | 3900 |
| ttatacgcgc  | cgagcgccac  | cgggcaggcg  | gaggtcatcc  | ggcgtctgtt  | cgaccggacc  | 3960 |
| ggcatcgacc  | ctgcatcgat  | tggctacgtc  | gaggcccatg  | gcaccggaac  | cttgcgtgggt | 4020 |
| gaccctgtcg  | aggtctccgc  | gctgagcgaa  | gccttccgga  | ccttcaccga  | ccggcgcggg  | 4080 |

40  
E1  
Cont.

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                     20                      25                      30  
 5 Leu Ala Gln Gly Thr Phe Thr Glu Glu Lys Ile Leu Pro Pro Lys Leu  
                     35                      40                      45  
 10 Ala Met His Gly Phe Thr Leu Ser Phe Glu Ala Thr Gly Glu Ala Ser  
                     50                      55                      60  
 Ile Arg Asn Phe Asn Ser Leu Gly Asp Val Asp Glu Asn Gly Ile Ile  
                     65                      70                      75                      80  
 15 Gly Glu Pro Ser Pro Glu Ser Ala Glu Pro Gly Pro Arg Pro Gln Leu  
                     85                      90                      95  
 20 Leu Leu Gly Ser Asp Ile Gly Trp Met Arg Tyr Gln Val Ser Ala Arg  
                     100                      105                      110  
 Val Lys Ala Ala Val Ser Ala Ser Leu Ser Phe Leu Ala Ser Glu Asn  
                     115                      120                      125  
 25 Gln Thr Glu Leu Ser Val Thr Leu Ser Asp Tyr Arg Ala His Pro Leu  
                     130                      135                      140  
 Gly Gln Asn Met Arg Glu Ala Val Arg Ser Asp Leu Ser Glu Leu Arg  
                     145                      150                      155                      160  
 30 Leu Met Gln Ala Thr Asp Leu Ala Lys Leu Thr Thr Gly Asp Ala Val  
                     165                      170                      175  
 35 Ala Trp His Val Arg Gly Ala Leu His Thr Arg Leu Glu Leu Asn Trp  
                     180                      185                      190  
 Ala Asp Ile Phe Pro Thr Asn Leu Asn Arg Leu Gly Phe Leu Arg Gly  
                     195                      200                      205  
 40 Asn Glu Leu Leu Ala Leu Lys Thr Ser Ala Lys Ala Gly Leu Ser Ala  
                     210                      215                      220  
 Arg Val Ser Leu Thr Asp Asp Tyr Gln Leu Ser Phe Ser Arg Pro Arg  
                     225                      230                      235                      240  
 45 Ala Gly Arg Ile Gln Val Ala Val Arg Lys Val Lys Ser His Glu Gln  
                     245                      250                      255  
 50 Ala Leu Ser Ala Gly Leu Gly Ile Thr Val Glu Leu Leu Asp Pro Ala  
                     260                      265                      270  
 Thr Val Lys Ala Gln Leu Gly Gln Leu Leu Glu Ala Leu Leu Gly Pro  
                     275                      280                      285  
 55 Val Leu Arg Asp Leu Val Lys Lys Gly Thr Thr Ala Val Glu Ile Met  
                     290                      295                      300  
 Asp Gly Leu Val Asp Lys Ala Ser Lys Ala Lys Leu Asp Asp Asn Gln  
                     305                      310                      315                      320  
 60 Lys Lys Val Leu Gly Leu Val Leu Glu Arg Leu Gly Ile Asp Pro Gln  
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El  
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Leu Ala Asp Pro Ala Asn Leu Pro Gln Ala Trp Ala Asp Phe Lys Ala  
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 5 Arg Val Ala Glu Ser Leu Glu Asn Ala Val Arg Thr Gln Val Ala Glu  
 355 360 365  
 Gly Phe Glu Tyr Glu Tyr Leu Arg Leu Ser Glu Thr Ser Thr Leu Leu  
 370 375 380  
 10 Glu Val Val Val Glu Asp Val Thr Ala Met Arg Phe His Glu Ser Leu  
 385 390 395 400  
 15 Leu Lys Gly Asn Leu Val Glu Leu Leu Lys Trp Met Lys Ser Leu Pro  
 405 410 415  
 Ala Gln Gln Ser Glu Phe Glu Leu Arg Asn Tyr Leu His Ala Thr Thr  
 420 425 430  
 20 Leu Thr Arg Gln Gln Ala Ile Gly Phe Ser Leu Gly Leu Gly Ser Phe  
 435 440 445  
 Glu Leu Leu Lys Ala Lys Asn Val Ser Lys Gln Ser Trp Val Thr Gln  
 450 455 460  
 25 Glu Asn Phe Gln Gly Ala Arg Arg Met Ala Phe Leu Gly Arg Arg Gly  
 465 470 475 480  
 30 Tyr Glu Asp Lys Leu Leu Gly Thr Arg Gly Gln Trp Val Val Asp Leu  
 485 490 495  
 Lys Ala Asp Met Thr Arg Phe Ser Pro Thr Pro Val Ala Ser Asp Phe  
 500 505 510  
 35 Gly Tyr Gly Leu His Leu Met Leu Trp Gly Arg Gln Lys Lys Leu Ser  
 515 520 525  
 Arg Lys Asp Leu Gln Gln Ala Val Asp Asp Ala Val Val Trp Gly Val  
 530 535 540  
 40 Leu Asp Ala Lys Asp Ala Ala Thr Val Ile Ser Thr Met Gln Glu Asp  
 545 550 555 560  
 Met Gly Lys His Pro Ile Glu Thr Arg Leu Glu Leu Lys Met Ala Asp  
 565 570 575  
 Asp Ser Phe Arg Ala Leu Val Pro Arg Ile Gln Thr Leu Glu Leu Ser  
 580 585 590  
 50 Arg Phe Ser Arg Ala Leu Ala Arg Ala Leu Pro Trp Ser Glu Gln Leu  
 595 600 605  
 Pro Arg Ala Ser Ala Glu Phe Arg Arg Ala Val Tyr Ala Pro Ile Trp  
 610 615 620  
 55 Glu Ala Tyr Leu Arg Glu Val Gln Glu Gln Gly Ser Leu Met Leu Asn  
 625 630 635 640  
 60 Asp Leu Ser Pro Ser Arg Ala Ala Gln Ile Ala Lys Trp Tyr Phe Gln  
 645 650 655

El  
 cont

Lys Asp Pro Thr Val Arg Asp Leu Gly Lys Asp Leu Gln Leu Ile Glu  
 660 665 670  
 5 Ser Glu Trp Arg Pro Gly Gly Gly Asn Phe Ser Phe Ala Glu Val Ile  
 675 680 685  
 Ser Lys Asn Pro Asn Thr Leu Met Arg Cys Arg Asn Phe Val Ser Gly  
 690 695 700  
 10 Met Val Arg Leu Arg Arg Ala Ile Asp Glu Arg Lys Ala Pro Asp Glu  
 705 710 715 720  
 Leu Arg Thr Val Phe Gly Glu Leu Glu Gly Met Trp Thr Thr Gly Phe  
 725 730 735  
 15 His Leu Arg Ala Ala Gly Ser Leu Leu Ser Asp Leu Ala Gln Ser Thr  
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 20 Pro Leu Gly Leu Ala Gly Val Glu Arg Thr Leu Thr Val Arg Val Ala  
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 40 Pro Phe Gly Gly Leu Val Gly Arg Glu Val Asp Leu Asp Ala Phe Leu  
 35 40 45  
 E1  
 Cont  
 45 Gln Thr Leu Met Asp Arg Ile Ala Ile Thr Leu Gln Ala Asp Arg Gly  
 50 55 60  
 Thr Leu Trp Leu Leu Asp Pro Ala Arg Arg Glu Leu Phe Ser Arg Ala  
 65 70 75 80  
 50 Ala His Leu Pro Glu Val Ser Gln Ile Arg Val Lys Leu Gly Gln Gly  
 85 90 95  
 Val Ala Gly Thr Val Ala Lys Ala Gly His Ala Ile Asn Val Pro Asp  
 100 105 110  
 55 Pro Arg Gly Glu Gln Arg Phe Phe Ala Asp Ile Asp Arg Met Thr Gly  
 115 120 125  
 60 Tyr Arg Thr Thr Ser Leu Leu Ala Val Pro Leu Arg Asp Gly Asp Gly  
 130 135 140

Ala Leu Tyr Gly Val Leu Gln Val Leu Asn Arg Arg Gly Glu Asp Arg  
 145 150 155 160

5 Phe Thr Asp Glu Asp Thr Gln Arg Leu Thr Ala Ile Ala Ser Gln Val  
 165 170 175

Ser Thr Ala Leu Gln Ser Thr Ser Leu Tyr Gln Glu Leu Gln Arg Ala  
 180 185 190

10 Lys Glu Gln Pro Gln Val Pro Val Gly Tyr Phe Phe Asn Arg Ile Ile  
 195 200 205

Gly Glu Ser Pro Gln Leu Gln Ala Ile Tyr Arg Leu Val Arg Lys Ala  
 210 215 220

15 Ala Pro Thr Asp Ala Thr Val Leu Leu Arg Gly Glu Ser Gly Ser Gly  
 225 230 235 240

20 Lys Glu Leu Phe Ala Arg Ala Val His Val Asn Gly Pro Arg Arg Asp  
 245 250 255

Gln Pro Phe Ile Lys Val Asp Cys Ala Ala Leu Pro Ala Thr Leu Ile  
 260 265 270

25 Glu Asn Glu Leu Phe Gly His Glu Arg Gly Ala Phe Thr Gly Ala Asp  
 275 280 285

His Arg Val Pro Gly Lys Phe Glu Ala Ala Ser Gly Gly Thr Val Phe  
 290 295 300

30 Ile Asp Glu Ile Gly Glu Leu Pro Leu Pro Val Gln Gly Lys Leu Leu  
 305 310 315 320

35 Arg Val Ile Gln Asp Arg Glu Phe Glu Arg Val Gly Gly Thr Gln Ala  
 325 330 335

Val Lys Val Asp Val Arg Ile Val Ala Ala Thr His Arg Asp Leu Ala  
 340 345 350

40 Arg Met Val Ala Glu Gly Arg Phe Arg Glu Asp Leu Tyr Tyr Arg Ile  
 355 360 365

E1  
 Cont  
 45 Lys Val Val Glu Val Val Leu Pro Pro Leu Arg Glu Arg Gly Ala Glu  
 370 375 380

Asp Ile Glu Arg Leu Ala Arg His Phe Val Ala Ala Val Ala Arg Arg  
 385 390 395 400

50 His Arg Leu Thr Pro Pro Arg Leu Ser Ala Ala Val Glu Arg Leu  
 405 410 415

Lys Arg Tyr Arg Trp Pro Gly Asn Val Arg Glu Leu Glu Asn Cys Ile  
 420 425 430

55 Glu Ser Ala Val Val Leu Cys Glu Gly Glu Ile Leu Glu Glu His Leu  
 435 440 445

Pro Leu Pro Asp Val Asp Arg Ala Ala Leu Pro Pro Pro Ala Ala Ala  
 450 455 460

60 Gln Gly Val Asn Ala Pro Thr Ala Pro Ala Pro Leu Asp Ala Gly Leu

465                      470                      475                      480  
 Leu Pro Leu Ala Glu Val Glu Arg Arg His Ile Leu Arg Val Leu Asp  
                             485                      490                      495  
 5    Ala Val Lys Gly Asn Arg Thr Ala Ala Ala Arg Val Leu Ala Ile Gly  
                             500                      505                      510  
 10   Arg Asn Thr Leu Ala Arg Lys Leu Lys Glu Tyr Gly Leu Gly Asp Glu  
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       <211> 292  
       <212> Amino acid  
       <213> Myxococcus xanthus  
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       1                      5                      10                      15  
 25   Glu Val Arg Phe His Gly Val Arg Gly Ser Ile Ala Val Ser Gly Ser  
                             20                      25                      30  
       Arg Ile Gly Gly Asn Thr Ala Cys Val Glu Val Thr Ser Gln Gly His  
                             35                      40                      45  
 30   Arg Leu Ile Leu Asp Ala Gly Thr Gly Ile Arg Ala Leu Gly Glu Ile  
                             50                      55                      60  
 35   Met Met Arg Glu Gly Ala Pro Gln Glu Ala Thr Leu Phe Phe Ser His  
       65                      70                      75                      80  
       Leu His Trp Asp His Val Gln Gly Phe Pro Phe Phe Thr Pro Ala Trp  
                             85                      90                      95  
 40   Leu Pro Thr Ser Glu Leu Thr Leu Tyr Gly Pro Gly Ala Asn Gly Ala  
                             100                      105                      110  
 E1  
 cont  
       Gln Ala Leu Gln Ser Glu Leu Ala Ala Gln Met Gln Pro Leu His Phe  
                             115                      120                      125  
 45   Pro Val Pro Leu Ser Thr Met Arg Ser Arg Met Asp Phe Arg Ser Ala  
                             130                      135                      140  
 50   Leu His Ala Arg Pro Val Glu Val Gly Pro Phe Arg Val Thr Pro Ile  
       145                      150                      155                      160  
       Asp Val Pro His Pro Gln Gly Cys Leu Ala Tyr Arg Leu Glu Ala Asp  
                             165                      170                      175  
 55   Gly His Ser Phe Val Tyr Ala Thr Asp Val Glu Val Arg Val Gln Glu  
                             180                      185                      190  
       Leu Ala Pro Glu Val Gly Arg Leu Phe Glu Gly Ala Asp Val Leu Cys  
                             195                      200                      205  
 60   Leu Asp Ala Gln Tyr Thr Pro Asp Glu Tyr Glu Gly Arg Lys Gly Val

210

215

220

Ala Lys Lys Gly Trp Gly His Ser Thr Met Met Asp Ala Ala Gly Val  
225 230 235 240

5

Ala Gly Leu Val Gly Ala Arg Arg Leu Cys Leu Phe His His Asp Pro  
245 250 255

10

Ala His Gly Asp Asp Met Leu Glu Asp Met Ala Glu Gln Ala Arg Ala  
260 265 270

Leu Phe Pro Val Cys Glu Pro Ala Arg Glu Gly Gln Arg Leu Val Leu  
275 280 285

15

Gly Arg Ala Ala  
290

20

&lt;210&gt; 6

&lt;211&gt; 168

&lt;212&gt; Amino acid

&lt;213&gt; Myxococcus xanthus

25

&lt;400&gt; 6

Met Pro Gly Pro Arg Cys Ala Glu Asn Asp Trp Val Ala Leu Leu Val  
1 5 10 15

Arg Val Asn His Glu Lys Val Ala Ala Ala Gln Leu Gly Lys His Gly  
20 25 30

30

Tyr Glu Phe Phe Leu Pro Thr Tyr Thr Pro Pro Lys Ser Ser Gly Val  
35 40 45

35

Lys Ala Lys Leu Pro Leu Phe Pro Gly Tyr Leu Phe Cys Arg Tyr Gln  
50 55 60

Pro Leu Asn Pro Tyr Arg Ile Val Arg Ala Pro Gly Val Ile Arg Leu  
65 70 75 80

40

Leu Gly Gly Asp Ala Gly Pro Glu Ala Val Pro Ala Gln Glu Leu Glu  
85 90 95

Ala Ile Arg Arg Val Ala Asp Ser Gly Val Ser Ser Asn Pro Cys Asp  
100 105 110

45

Tyr Leu Arg Val Gly Gln Arg Val Arg Ile Ile Glu Gly Pro Leu Thr  
115 120 125

50

Gly Leu Glu Gly Ser Leu Val Thr Ser Lys Ser Gln Leu Arg Phe Ile  
130 135 140

Val Ser Val Gly Leu Leu Gln Arg Ser Val Ser Val Glu Val Ser Ala  
145 150 155 160

55

Glu Gln Leu Glu Pro Ile Thr Asp  
165

60

&lt;210&gt; 7

&lt;211&gt; 79

&lt;212&gt; Amino acid



<213> Myxococcus xanthus

<400> 7

5 Met Asp Lys Arg Ile Ile Phe Asp Ile Val Thr Ser Ser Val Arg Glu  
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Val Val Pro Glu Leu Glu Ser His Pro Phe Glu Pro Glu Asp Asp Leu  
20 25 30  
10 Val Gly Leu Gly Ala Asn Ser Leu Asp Arg Ala Glu Ile Val Asn Leu  
35 40 45  
Thr Leu Glu Lys Leu Ala Leu Asn Ile Pro Arg Val Glu Leu Ile Asp  
50 55 60  
15 Ala Lys Thr Ile Gly Gly Leu Val Asp Val Leu His Ala Arg Leu  
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20 <210> 8  
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25 <400> 8

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Arg Phe Ala Asn Leu Leu Met Glu Glu Lys Thr Val Pro Leu Pro Tyr  
35 40 45  
35 Glu Asp Pro Val Thr Tyr Gly Val Asn Ala Ala Arg Pro Ile Leu Asp  
50 55 60  
Gln Leu Thr Ala Ala Glu Arg Asp Ser Ile Glu Leu Leu Val Ala Cys  
65 70 75 80  
40 Thr Glu Ser Ser Phe Asp Phe Gly Lys Ala Met Ser Thr Tyr Leu His  
85 90 95  
E1  
CMT  
45 Gln His Leu Gly Leu Ser Arg Asn Cys Arg Leu Ile Glu Leu Lys Ser  
100 105 110  
Ala Cys Tyr Ser Gly Val Ala Gly Leu Gln Met Ala Val Asn Phe Ile  
115 120 125  
50 Leu Ser Gly Val Ser Pro Gly Ala Lys Ala Leu Val Val Ala Ser Asp  
130 135 140  
Leu Ser Arg Phe Ser Ile Ala Glu Gly Gly Asp Ala Ser Thr Glu Asp  
145 150 155 160  
55 Trp Ser Phe Ala Glu Pro Ser Ser Gly Ala Gly Ala Val Ala Met Leu  
165 170 175  
60 Val Ser Asp Thr Pro Arg Val Phe Arg Val Asp Val Gly Ala Asn Gly  
180 185 190

Tyr Tyr Gly Tyr Glu Val Met Asp Thr Cys Arg Pro Val Ala Asp Ser  
 195 200 205  
 5 Glu Ala Gly Asp Ala Asp Leu Ser Leu Leu Ser Tyr Leu Asp Cys Cys  
 210 215 220  
 Glu Asn Ala Phe Arg Glu Tyr Thr Arg Arg Val Pro Ala Ala Asn Tyr  
 225 230 235 240  
 10 Ala Glu Ser Phe Gly Tyr Leu Ala Phe His Thr Pro Phe Gly Gly Met  
 245 250 255  
 Val Lys Gly Ala His Arg Thr Met Met Arg Lys Phe Ser Gly Lys Asn  
 260 265 270  
 15 Arg Gly Asp Ile Glu Ala Asp Phe Gln Arg Arg Val Ala Pro Gly Leu  
 275 280 285  
 20 Thr Tyr Cys Gln Arg Val Gly Asn Ile Met Gly Ala Thr Met Ala Leu  
 290 295 300  
 Ser Leu Leu Gly Thr Ile Asp His Gly Asp Phe Ala Thr Ala Lys Arg  
 305 310 315 320  
 25 Ile Gly Cys Phe Ser Tyr Gly Ser Gly Cys Ser Ser Glu Phe Phe Ser  
 325 330 335  
 Gly Val Val Thr Glu Glu Gly Gln Gln Arg Gln Arg Ala Leu Gly Leu  
 340 345 350  
 30 Gly Glu Ala Leu Gly Arg Arg Gln Gln Leu Ser Met Pro Asp Tyr Asp  
 355 360 365  
 35 Ala Leu Leu Lys Gly Asn Gly Leu Val Arg Phe Gly Thr Arg Asn Ala  
 370 375 380  
 Glu Leu Asp Phe Gly Val Val Gly Ser Ile Arg Pro Gly Gly Trp Gly  
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 40 Arg Pro Leu Leu Phe Leu Ser Ala Ile Arg Asp Phe His Arg Asp Tyr  
 405 410 415  
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 <212> Amino acid  
 50 <213> Myxococcus xanthus  
 <400> 9  
 Met Ser Ser Val Ala Thr Ala Val Pro Leu Thr Ala Arg Asp Ser Ala  
 1 5 10 15  
 55 Val Ser Arg Arg Leu Arg Ile Thr Pro Ser Met Cys Gly Gln Thr Ser  
 20 25 30  
 60 Leu Phe Ala Gly Gln Ile Gly Asp Trp Ala Trp Asp Thr Val Ser Arg  
 35 40 45

Leu Cys Gly Thr Asp Val Leu Thr Ala Thr Asn Ala Ser Gly Ala Pro  
 50 55 60

5 Thr Tyr Leu Ala Phe Tyr Tyr Phe Arg Ile Arg Gly Thr Pro Ala Leu  
 65 70 75 80

His Pro Gly Ala Leu Arg Phe Gly Asp Thr Leu Asp Val Thr Ser Lys  
 85 90 95

10 Ala Tyr Asn Phe Gly Ser Glu Ser Val Leu Thr Val His Arg Ile Cys  
 100 105 110

Lys Thr Ala Glu Gly Gly Ala Pro Glu Ala Asp Ala Phe Gly His Glu  
 115 120 125

15 Glu Leu Tyr Glu Gln Pro Gln Pro Gly Arg Ile Tyr Ala Glu Thr Phe  
 130 135 140

20 Asn Arg Trp Ile Thr Arg Ser Asp Gly Lys Ser Asn Glu Ser Leu Ile  
 145 150 155 160

Lys Ser Ser Pro Val Gly Phe Gln Tyr Ala His Leu Pro Leu Leu Pro  
 165 170 175

25 Asp Glu Tyr Ser Pro Arg Arg Ala Tyr Gly Asp Ala Arg Ala Arg Gly  
 180 185 190

Thr Phe His Asp Val Asp Ser Ala Glu Tyr Arg Leu Thr Val Asp Arg  
 195 200 205

30 Phe Pro Leu Arg Tyr Ala Val Asp Val Ile Arg Asp Val Asn Gly Val  
 210 215 220

35 Gly Leu Ile Tyr Phe Ala Ser Tyr Phe Ser Met Val Asp Trp Ala Ile  
 225 230 235 240

Trp Gln Leu Ala Arg His Gln Gly Arg Ser Glu Gln Ala Phe Leu Ser  
 245 250 255

40 Arg Val Val Leu Asp Gln Gln Leu Cys Phe Leu Gly Asn Ala Ala Leu  
 260 265 270

Asp Thr Thr Phe Asp Ile Asp Val Gln His Trp Glu Arg Val Gly Gly  
 275 280 285

Gly Glu Glu Leu Phe Asn Val Lys Met Arg Glu Gly Ala Gln Gly Arg  
 290 295 300

50 Asp Ile Ala Val Ala Thr Val Lys Val Arg Phe Asp Ala Ala Ser Glu  
 305 310 315 320

Gly Gly Arg Arg Gly  
 325

55

<210> 10  
 <211> 83  
 <212> Amino acid  
 <213> Myxococcus xanthus

60

<400> 10

E1  
 cont  
 45

Met Thr Asp Glu Gln Ile Arg Gly Val Val His Gln Ser Ile Val Arg  
1 5 10 15

5 Val Leu Pro Arg Val Arg Ser Asn Glu Ile Ala Gly His Leu Asn Leu  
20 25 30

Arg Glu Leu Gly Ala Asp Ser Val Asp Arg Val Glu Ile Leu Thr Ser  
35 40 45

10 Ile Leu Asp Ser Leu Arg Leu Gln Lys Thr Pro Leu Ala Lys Phe Ala  
50 55 60

Asp Ile Arg Asn Ile Asp Ala Leu Val Ala Phe Leu Ala Gly Glu Val  
65 70 75 80

15 Ala Gly Gly

20 <210> 11  
<211> 374  
<212> Amino acid  
<213> Myxococcus xanthus

25 <400> 11  
Met Met Gln Glu Arg Gly Val Ala Leu Pro Phe Glu Asp Pro Val Thr  
1 5 10 15

30 Asn Ala Val Asn Ala Ala Arg Pro Ile Leu Asp Ala Met Ser Pro Glu  
20 25 30

Ala Arg Glu Arg Ile Glu Leu Leu Val Thr Ser Ser Glu Ser Gly Val  
35 40 45

35 Asp Phe Ser Lys Ser Ile Ser Ser Tyr Ala His Glu His Leu Gly Leu  
50 55 60

Ser Arg His Cys Arg Phe Leu Glu Val Lys Gln Ala Cys Tyr Ala Ala  
65 70 75 80

40 Thr Gly Ala Leu Gln Leu Ala Leu Gly Tyr Ile Ala Ser Gly Val Ser  
85 90 95

El  
cont  
45 Pro Gly Ala Lys Ala Leu Val Ile Ala Thr Asp Val Thr Leu Val Asp  
100 105 110

Glu Ser Gly Leu Tyr Ser Glu Pro Ala Met Gly Thr Gly Gly Val Ala  
115 120 125

50 Val Leu Leu Gly Asp Glu Pro Arg Val Met Lys Met Asp Leu Gly Ala  
130 135 140

Phe Gly Asn Tyr Ser Tyr Asp Val Phe Asp Thr Ala Arg Pro Ser Pro  
145 150 155 160

55 Glu Ile Asp Ile Gly Asp Val Asp Arg Ser Leu Phe Thr Tyr Leu Asp  
165 170 175

60 Cys Leu Lys His Ser Phe Ala Ala Tyr Gly Arg Arg Val Asp Gly Val  
180 185 190

Asp Phe Val Ser Thr Phe Asp Tyr Leu Ala Met His Thr Pro Phe Ala  
 195 200 205  
 5 Gly Leu Val Lys Ala Gly His Arg Lys Met Met Arg Glu Leu Thr Pro  
 210 215 220  
 Cys Asp Val Asp Glu Ile Glu Ala Asp Phe Gly Arg Arg Val Lys Pro  
 225 230 235 240  
 10 Ser Leu Gln Tyr Pro Ser Leu Val Gly Asn Leu Cys Ser Gly Ser Val  
 245 250 255  
 Tyr Leu Ser Leu Cys Ser Ile Ile Asp Thr Ile Lys Pro Glu Arg Ser  
 260 265 270  
 15 Ala Arg Val Gly Met Phe Ser Tyr Gly Ser Gly Cys Ser Ser Glu Phe  
 275 280 285  
 Phe Ser Gly Val Ile Gly Pro Glu Ser Val Ser Ala Leu Ala Gly Leu  
 290 295 300  
 Asp Ile Gly Gly His Leu Arg Gly Arg Arg Gln Leu Thr Phe Asp Gln  
 305 310 315 320  
 25 Tyr Val Glu Leu Leu Lys Glu Asn Leu Arg Cys Leu Val Pro Thr Lys  
 325 330 335  
 Asn Arg Asp Val Asp Val Glu Arg Tyr Leu Pro Leu Val Thr Arg Thr  
 340 345 350  
 30 Ala Ser Arg Pro Arg Met Leu Ala Leu Arg Arg Val Val Asp Tyr His  
 355 360 365  
 Arg Gln Tyr Glu Trp Val  
 370  
 35  
 <210> 12  
 <211> 171  
 <212> Amino acid  
 <213> Myxococcus xanthus  
 40  
 <400> 12  
 Met Asn Thr Pro Ser Leu Thr Asn Trp Pro Ala Arg Leu Gly Tyr Leu  
 1 5 10 15  
 45 Leu Ala Val Gly Gly Ala Trp Phe Ala Ala Asp Gln Val Thr Lys Gln  
 20 25 30  
 50 Met Ala Arg Asp Gly Ala Lys Arg Pro Val Ala Val Phe Asp Ser Trp  
 35 40 45  
 Trp His Phe His Tyr Val Glu Asn Arg Ala Gly Ala Phe Gly Leu Phe  
 50 55 60  
 55 Ser Ser Phe Gly Glu Glu Trp Arg Met Pro Phe Phe Tyr Val Val Gly  
 65 70 75 80  
 60 Ala Ile Cys Ile Val Leu Leu Ile Gly Tyr Tyr Phe Tyr Thr Pro Pro  
 85 90 95

E1  
 Cont

Thr Met Lys Leu Gln Arg Trp Ser Leu Ala Thr Met Ile Gly Gly Ala  
 100 105 110  
 5 Leu Gly Asn Tyr Val Asp Arg Val Arg Leu Arg Tyr Val Val Asp Phe  
 115 120 125  
 Val Ser Trp His Val Gly Asp Arg Phe Tyr Trp Pro Ser Phe Asn Ile  
 130 135 140  
 10 Ala Asp Thr Ala Val Val Val Gly Ala Ala Leu Met Ile Leu Glu Ser  
 145 150 155 160  
 Phe Arg Glu Pro Arg Gln Gln Leu Ser Pro Gly  
 165 170  
 15  
 <210> 13  
 <211> 475  
 <212> Amino acid  
 20 <213> Myxococcus xanthus  
 <400> 13  
 Met Gly Thr Ser Glu Pro Val Glu Pro Asp His Ala Leu Ser Lys Pro  
 1 5 10 15  
 25 Pro Pro Val Ala Pro Val Gly Ala Gln Ala Leu Pro Arg Gly Pro Ala  
 20 25 30  
 30 Met Pro Gly Ile Ala Gln Leu Met Met Leu Phe Leu Arg Pro Thr Glu  
 35 40 45  
 Phe Leu Asp Arg Cys Ala Ala Arg Tyr Gly Asp Thr Phe Thr Leu Lys  
 50 55 60  
 35 Ile Pro Gly Thr Pro Pro Phe Ile Gln Thr Ser Asp Pro Ala Leu Ile  
 65 70 75 80  
 Glu Val Ile Phe Lys Gly Asp Pro Asp Leu Phe Leu Gly Gly Lys Ala  
 85 90 95  
 40 Asn Asn Gly Leu Lys Pro Val Val Gly Glu Asn Ser Leu Leu Val Leu  
 100 105 110  
 Asp Gly Lys Arg His Arg Arg Asp Arg Lys Leu Ile Met Pro Thr Phe  
 115 120 125  
 Leu Gly Glu Arg Met His Ala Tyr Gly Ser Val Ile Arg Asp Ile Val  
 130 135 140  
 50 Asn Ala Ala Leu Asp Arg Trp Pro Val Gly Lys Pro Phe Ala Val His  
 145 150 155 160  
 Glu Glu Thr Gln Gln Ile Met Leu Glu Val Ile Leu Arg Val Ile Phe  
 165 170 175  
 55 Gly Leu Glu Asp Ala Arg Thr Ile Ala Gln Phe Arg His His Val His  
 180 185 190  
 Gln Val Leu Lys Leu Ala Leu Phe Leu Phe Pro Asn Gly Glu Gly Lys  
 195 200 205  
 60

E1  
 CONT  
 45

Pro Ala Ala Glu Gly Phe Ala Arg Ala Val Gly Lys Ala Phe Pro Ser  
 210 215 220

5 Leu Asp Val Phe Ala Ser Leu Lys Ala Ile Asp Asp Ile Ile Tyr Gln  
 225 230 235 240

Glu Ile Gln Asp Arg Arg Ser Gln Asp Ile Ser Gly Arg Gln Asp Val  
 245 250 255

10 Leu Ser Leu Met Met Gln Ser His Tyr Asp Asp Gly Ser Val Met Thr  
 260 265 270

Pro Gln Glu Leu Arg Asp Glu Leu Met Thr Leu Leu Met Ala Gly His  
 275 280 285

15 Glu Thr Ser Ala Thr Ile Ala Ala Trp Cys Val Tyr His Leu Cys Arg  
 290 295 300

20 His Pro Asp Ala Met Gly Lys Leu Arg Glu Glu Ile Ala Ala His Thr  
 305 310 315 320

Val Asp Gly Val Leu Pro Leu Ala Lys Ile Asn Glu Leu Lys Phe Leu  
 325 330 335

25 Asp Ala Val Val Lys Glu Thr Met Arg Ile Thr Pro Val Phe Ser Leu  
 340 345 350

Val Ala Arg Val Leu Lys Glu Pro Gln Thr Ile Gly Gly Thr Thr Tyr  
 355 360 365

30 Pro Ala Asn Val Val Leu Ser Pro Asn Ile Tyr Gly Thr His His Arg  
 370 375 380

35 Ala Asp Leu Trp Gly Asp Pro Lys Val Phe Arg Pro Glu Arg Phe Leu  
 385 390 395 400

Glu Glu Arg Val Asn Pro Phe His Tyr Phe Pro Phe Gly Gly Gly Ile  
 405 410 415

40 Arg Lys Cys Ile Gly Thr Ser Phe Ala Tyr Tyr Glu Met Lys Ile Phe  
 420 425 430

Val Ser Glu Thr Val Arg Arg Met Arg Phe Asp Thr Arg Pro Gly Tyr  
 435 440 445

45 His Ala Lys Val Val Arg Arg Ser Asn Thr Leu Ala Pro Ser Gln Gly  
 450 455 460

Val Pro Ile Ile Val Glu Ser Arg Leu Pro Ser  
 465 470 475

55 <210> 14  
 <211> 318  
 <212> Amino acid  
 <213> Myxococcus xanthus

<400> 14  
 Met Val Asp Ser Val Ser Lys Gln Ala Arg Arg Lys Val Phe Leu Phe  
 1 5 10 15

60

E1  
 CONT

Ser Gly Gln Gly Thr Gln Ser Tyr Phe Met Ala Lys Glu Leu Phe Asp  
 20 25 30  
 5 Thr Gln Thr Gly Phe Lys Arg Gln Leu Leu Glu Leu Asp Glu Gln Phe  
 35 40 45  
 Lys Gln Arg Leu Gly His Ser Ile Leu Glu Arg Ile Tyr Asp Ala Arg  
 50 55 60  
 10 Ala Ala Arg Leu Asp Pro Leu Asp Asp Val Leu Val Ser Phe Pro Ala  
 65 70 75 80  
 Ile Phe Met Ile Glu His Ala Leu Ala Arg Leu Leu Ile Asp Arg Gly  
 85 90 95  
 15 Ile Gln Pro Asp Ala Val Val Gly Ala Ser Met Gly Glu Val Ala Ala  
 100 105 110  
 Ala Ala Ile Ala Gly Ala Ile Ser Val Asp Ala Ala Val Ala Leu Val  
 115 120 125  
 20 Ala Ala Gln Ala Gln Leu Phe Ala Arg Thr Ala Pro Arg Gly Gly Met  
 130 135 140  
 25 Leu Ala Val Leu His Glu Leu Glu Ala Cys Arg Gly Phe Thr Ser Val  
 145 150 155 160  
 Ala Arg Asp Gly Glu Val Ala Ala Ile Asn Tyr Pro Ser Asn Phe Val  
 165 170 175  
 30 Leu Ala Ala Asp Glu Ala Gly Leu Gly Arg Ile Gln Gln Glu Leu Ser  
 180 185 190  
 Gln Arg Ser Val Ala Phe His Arg Leu Pro Val Arg Tyr Pro Phe His  
 195 200 205  
 35 Ser Ser His Leu Asp Pro Leu Arg Glu Glu Tyr Arg Ser Arg Val Arg  
 210 215 220  
 40 Ala Asp Ser Leu Thr Trp Pro Arg Ile Pro Met Tyr Ser Cys Thr Thr  
 225 230 235 240  
 E! Cont  
 45 Ala Asn Arg Val His Asp Leu Arg Ser Asp His Phe Trp Asn Val Val  
 245 250 255  
 Arg Ala Pro Ile Gln Leu Tyr Asp Thr Val Leu Gln Leu Glu Gly Gln  
 260 265 270  
 50 Gly Gly Cys Asp Phe Ile Asp Val Gly Pro Ala Ala Ser Phe Ala Thr  
 275 280 285  
 Ile Ile Lys Arg Ile Leu Ala Arg Asp Ser Thr Ser Arg Leu Phe Pro  
 290 295 300  
 55 Leu Leu Ser Pro Ser Pro Ala Ser Thr Gly Ser Ser Met Gly  
 305 310 315  
 60 <210> 15  
 <211> 330



<212> Amino acid

<213> Myxococcus xanthus

<400> 15

5 Met Thr Glu Ala Pro Ala Pro Arg Ala Pro Ala Gln Val Pro Pro Pro  
1 5 10 15

Pro Ser Ser Pro Trp Ala Leu His Thr Arg Gly Ala Ala Ser Ala Pro  
20 25 30

10 Val Asn Ala Arg Lys Ala Ala Leu Phe Pro Gly Gln Gly Ser Gln Glu  
35 40 45

15 Arg Gly Met Gly Ala Ala Leu Phe Asp Glu Phe Pro Asp Leu Thr Asp  
50 55 60

Ile Ala Asp Ala Ile Leu Gly Tyr Ser Ile Lys Arg Leu Cys Leu Glu  
65 70 75 80

20 Asp Pro Gly Lys Glu Leu Ala Gln Thr Gln Phe Thr Gln Pro Ala Leu  
85 90 95

Tyr Val Val Asn Ala Leu Ser Tyr Leu Lys Arg Leu Arg Glu Gly Ala  
100 105 110

25 Glu Gln Pro Ala Phe Val Ala Gly His Ser Leu Gly Glu Tyr Asn Ala  
115 120 125

30 Leu Leu Val Ala Gly Ala Phe Asp Phe Glu Thr Gly Leu Arg Leu Val  
130 135 140

Lys Arg Arg Gly Glu Leu Met Ser Gly Ala Ser Gly Gly Thr Met Ala  
145 150 155 160

35 Ala Val Val Gly Cys Asp Ala Val Ala Val Glu Gln Val Leu Arg Asp  
165 170 175

Arg Gln Leu Thr Ser Leu Asp Ile Ala Asn Ile Asn Ser Pro Asp Gln  
180 185 190

40 Ile Val Val Ser Gly Pro Ala Gln Asp Ile Glu Arg Ala Arg Gln Cys  
195 200 205

45 Phe Val Asp Arg Gly Ala Arg Tyr Val Pro Leu Asn Val Arg Ala Pro  
210 215 220

Phe His Ser Arg Tyr Met Gln Pro Ala Ala Ser Glu Phe Glu Arg Phe  
225 230 235 240

50 Leu Ser Gln Phe Gln Tyr Ala Pro Leu Arg Cys Val Ile Ser Asn  
245 250 255

Val Thr Gly Arg Pro Tyr Ala His Asp Asn Val Val Gln Gly Leu Ala  
260 265 270

55 Leu Gln Leu Arg Ser Pro Val Gln Trp Thr Ala Thr Val Arg Tyr Leu  
275 280 285

60 Leu Glu Gln Gly Val Glu Asp Phe Glu Glu Leu Gly Pro Gly Arg Val  
290 295 300

Leu Thr Arg Leu Ile Thr Ala Asn Lys Arg Gly Ala Pro Ala Pro Ala  
305 310 315 320

5 Thr Ala Ala Pro Ala Lys Trp Ala Asn Ala  
325 330

<210> 16  
<211> 417  
10 <212> Amino acid  
<213> Myxococcus xanthus

15 <400> 16  
Met Ser Thr Ser Pro Val Gln Glu Leu Val Val Ser Gly Phe Gly Val  
1 5 10 15

Thr Ser Ala Ile Gly Gln Gly Ala Ala Ser Phe Thr Ser Ala Leu Leu  
20 20 25 30

20 Glu Gly Ala Ala Arg Phe Arg Val Met Glu Arg Pro Gly Arg Gln His  
35 40 45

25 Gln Ala Asn Gly Gln Thr Thr Ala His Leu Gly Ala Glu Ile Ala Ser  
50 55 60

Leu Ala Val Pro Glu Gly Val Thr Pro Gln Leu Trp Arg Ser Ala Thr  
65 70 75 80

30 Phe Ser Gly Gln Ala Ala Leu Val Thr Val His Glu Ala Trp Asn Ala  
85 90 95

Ala Arg Leu Gln Ala Val Pro Gly His Arg Ile Gly Leu Val Val Gly  
100 105 110

35 Gly Thr Asn Val Gln Gln Arg Asp Leu Val Leu Met Gln Asp Ala Tyr  
115 120 125

Arg Glu Arg Val Pro Phe Leu Arg Ala Ala Tyr Gly Ser Thr Phe Met  
130 135 140

40 Asp Thr Asp Leu Val Gly Leu Cys Thr Gln Gln Phe Ala Ile His Gly  
145 150 155 160

45 Met Ser Phe Thr Val Gly Gly Ala Ser Ala Ser Gly Leu Leu Ala Val  
165 170 175

Ile Gln Ala Ala Glu Ala Val Leu Ser Arg Lys Val Asp Val Cys Ile  
180 185 190

50 Ala Val Gly Ala Leu Met Asp Val Ser Tyr Trp Glu Cys Gln Gly Leu  
195 200 205

Arg Ala Met Gly Ala Met Gly Thr Asp Arg Phe Ala Arg Glu Pro Glu  
210 215 220

55 Arg Ala Cys Arg Pro Phe Asp Arg Glu Ser Asp Gly Phe Ile Phe Gly  
225 230 235 240

60 Glu Ala Cys Gly Ala Val Val Val Glu Ser Ala Glu His Ala Arg Arg  
245 250 255

Arg Gly Val Thr Pro Arg Gly Ile Leu Ser Gly Trp Ala Met Gln Leu  
 260 265 270  
 5 Asp Ala Ser Arg Gly Pro Leu Ser Ser Ile Glu Arg Glu Ser Gln Val  
 275 280 285  
 Ile Gly Ala Ala Leu Arg His Ala Asp Leu Ala Pro Glu Arg Val Asp  
 290 295 300  
 10 Tyr Val Asn Pro His Gly Ser Gly Ser Arg Gln Gly Asp Ala Ile Glu  
 305 310 315 320  
 Leu Gly Ala Leu Lys Ala Cys Gly Leu Thr His Ala Arg Val Asn Thr  
 325 330 335  
 15 Thr Lys Ser Ile Thr Gly His Gly Leu Ser Ser Ala Gly Ala Val Gly  
 340 345 350  
 20 Leu Ile Ala Thr Leu Val Gln Leu Glu Gln Gly Arg Leu His Pro Ser  
 355 360 365  
 Leu Asn Leu Val Asp Pro Ile Asp Ser Ser Phe Arg Trp Val Gly Ala  
 370 375 380  
 25 Thr Ala Glu Ala Gln Ser Leu Gln Asn Ala Leu Val Leu Ala Tyr Gly  
 385 390 395 400  
 Phe Gly Gly Ile Asn Thr Ala Val Ala Val Arg Arg Ser Ala Thr Glu  
 405 410 415  
 30 Ser  
 35 <210> 17  
 <211> 262  
 <212> Amino acid  
 <213> Myxococcus xanthus  
 40 <400> 17  
 Met Gln Ala Ala Ser Pro Pro His Arg Asp Tyr Gln Thr Leu Arg Val  
 1 5 10 15  
 E' Cont  
 45 Arg Phe Glu Ala Gln Thr Cys Phe Leu Gln Leu His Arg Pro Asp Ala  
 20 25 30  
 Asp Asn Thr Ile Ser Arg Thr Leu Ile Asp Glu Cys Gln Gln Val Leu  
 35 40 45  
 50 Thr Leu Cys Glu Glu His Ala Thr Thr Val Val Leu Glu Gly Leu Pro  
 50 55 60  
 His Val Phe Cys Met Gly Ala Asp Phe Arg Ala Ile His Asp Arg Val  
 65 70 75 80  
 55 Asp Asp Gly Arg Arg Glu Gln Gly Asn Ala Glu Gln Leu Tyr Arg Leu  
 85 90 95  
 60 Trp Leu Gln Leu Ala Thr Gly Pro Tyr Val Thr Val Ala His Val Gln  
 100 105 110

Gly Lys Ala Asn Ala Gly Gly Leu Gly Phe Val Ser Ala Cys Asp Ile  
 115 120 125

5 Val Leu Ala Lys Ala Glu Val Gln Phe Ser Leu Ser Glu Leu Leu Phe  
 130 135 140

Gly Leu Phe Pro Ala Cys Val Met Pro Phe Leu Ala Arg Arg Ile Gly  
 145 150 155 160

10 Ile Gln Arg Ala His Tyr Leu Thr Leu Met Thr Arg Pro Ile Asp Ala  
 165 170 175

Ala Gln Ala Leu Ser Trp Gly Leu Ala Asp Ala Val Asp Ala Asp Ser  
 180 185 190

15 Glu Lys Leu Leu Arg Leu His Leu Arg Arg Leu Arg Cys Leu Ser Lys  
 195 200 205

20 Pro Ala Val Thr Gln Tyr Lys Lys Tyr Ala Ser Glu Leu Gly Gly Gln  
 210 215 220

Leu Leu Ala Ala Met Pro Arg Ala Ile Ser Ala Asn Glu Ala Met Phe  
 225 230 235 240

25 Ser Asp Arg Ala Thr Leu Glu Ala Ile His Arg Tyr Val Glu Thr Gly  
 245 250 255

Arg Leu Pro Trp Glu Ser  
 260

30

<210> 18  
 <211> 256  
 <212> Amino acid  
 35 <213> Myxococcus xanthus

<400> 18  
 Met Gly Ile Met Thr Glu Gly Thr Pro Met Ala Pro Val Val Thr Leu  
 1 5 10 15

40 His Glu Val Glu Glu Gly Val Ala Gln Ile Thr Leu Val Asp Arg Glu  
 20 25 30

E1  
 Cont  
 45 Asn Lys Asn Met Phe Ser Glu Gln Leu Val Arg Glu Leu Ile Thr Val  
 35 40 45

Phe Gly Lys Val Asn Gly Asn Glu Arg Tyr Arg Ala Val Val Leu Thr  
 50 55 60

50 Gly Tyr Asp Thr Tyr Phe Ala Leu Gly Gly Thr Lys Ala Gly Leu Leu  
 65 70 75 80

Ser Ile Cys Asp Gly Ile Gly Ser Phe Asn Val Thr Asn Phe Tyr Ser  
 85 90 95

55 Leu Ala Leu Glu Cys Asp Ile Pro Val Ile Ser Ala Met Gln Gly His  
 100 105 110

Gly Val Gly Gly Gly Phe Ala Met Gly Leu Phe Ala Asp Phe Val Val  
 115 120 125

60

Leu Ser Arg Glu Ser Val Tyr Thr Thr Asn Phe Met Arg Tyr Gly Phe  
 130 135 140  
 5 Thr Pro Gly Met Gly Ala Thr Tyr Ile Val Pro Lys Arg Leu Gly Tyr  
 145 150 155 160  
 Ser Leu Gly His Glu Leu Leu Leu Asn Ala Arg Asn Tyr Arg Gly Ala  
 165 170 175  
 10 Asp Leu Glu Lys Arg Gly Val Pro Phe Pro Val Leu Pro Arg Lys Glu  
 180 185 190  
 Val Leu Pro His Ala Tyr Glu Ile Ala Arg Asp Leu Ala Ala Lys Pro  
 195 200 205  
 15 Arg Leu Ser Leu Val Thr Leu Lys Arg His Leu Val Arg Asp Ile Arg  
 210 215 220  
 20 Arg Glu Leu Pro Asp Val Ile Glu Arg Glu Leu Glu Met His Gly Ile  
 225 230 235 240  
 Thr Phe His His Asp Asp Val Arg Arg Arg Ile Glu Gln Leu Phe Leu  
 245 250 255  
 25  
 30 <210> 19  
 <211> 424  
 <212> Amino acid  
 <213> Myxococcus xanthus  
 35 <400> 19  
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 Val Val Leu Ala Cys Asn Asp Ala Gly Leu Phe Glu Leu Leu Arg Gln  
 20 25 30  
 40 Gly Pro Lys Asp Phe Asp Arg Leu Ala Glu Ala Leu Arg Ala Asn Arg  
 35 40 45  
 E! cont  
 45 Gly His Leu Arg Val Ala Met Arg Met Phe Glu Ser Leu Gly Trp Val  
 50 55 60  
 Arg Arg Asp Ala Asp Asp Val Tyr Ala Val Thr Ala Ala Ala Ala Ala  
 65 70 75 80  
 50 His Arg Ser Phe Pro Arg Glu Ala Gln Ser Leu Phe Ala Leu Pro Met  
 85 90 95  
 Asp Arg Tyr Leu Arg Gly Glu Asp Gly Leu Ser Leu Ala Pro Trp Phe  
 100 105 110  
 55 Glu Arg Ser Arg Ala Ser Trp Asp Thr Asp Asp Thr Leu Val Arg Glu  
 115 120 125  
 60 Leu Leu Asp Gly Ala Ile Ile Thr Pro Leu Met Leu Ala Leu Glu Gln  
 130 135 140

Arg Gly Gly Leu Lys Glu Ala Arg Arg Leu Ser Asp Leu Trp Ser Gly  
 145 150 155 160  
 5 Gly Asp Gly Arg Asp Thr Cys Val Pro Glu Ala Val Gln His Glu Leu  
 165 170 175  
 Ala Gly Phe Phe Ser Ala Gln Lys Trp Thr Arg Glu Asp Ala Val Asp  
 180 185 190  
 10 Ala Glu Leu Thr Pro Lys Gly Ala Phe Ile Phe Glu Arg Ala Leu Leu  
 195 200 205  
 Phe Ala Ile Val Gly Ser Tyr Arg Pro Met Leu Ala Ser Met Pro Gln  
 210 215 220  
 15 Leu Leu Phe Gly Asp Cys Asp Gln Val Phe Gly Arg Asp Glu Ala Gly  
 225 230 235 240  
 His Glu Leu His Leu Asp Arg Thr Leu Asn Val Ile Gly Ser Gly His  
 20 245 250 255  
 Gln His Arg Lys Tyr Phe Ala Glu Leu Glu Lys Leu Ile Ile Thr Val  
 260 265 270  
 25 Phe Asp Ala Glu Asn Leu Ser Ala Gln Pro Arg Tyr Ile Ala Asp Met  
 275 280 285  
 Gly Cys Gly Asp Gly Thr Leu Leu Lys Arg Val Tyr Glu Thr Val Leu  
 290 295 300  
 30 Arg His Thr Arg Arg Gly Arg Ala Leu Asp Arg Phe Pro Leu Thr Leu  
 305 310 315 320  
 Ile Ala Ala Asp Phe Asn Glu Lys Ala Leu Glu Ala Ala Gly Arg Thr  
 35 325 330 335  
 Leu Ala Gly Leu Glu His Val Ala Leu Arg Ala Asp Val Ala Arg Pro  
 340 345 350  
 40 Asp Arg Leu Ile Glu Asp Leu Arg Ala Arg Gly Leu Ala Glu Pro Glu  
 355 360 365  
 Asn Thr Leu His Ile Arg Ser Phe Leu Asp His Asp Arg Pro Tyr Gln  
 370 375 380  
 45 Pro Pro Ala Asp Arg Ala Gly Leu His Ala Arg Ile Pro Phe Asp Ser  
 385 390 395 400  
 Val Phe Val Gly Lys Ala Gly Gln Glu Val Val Pro Ala Glu Val Phe  
 50 405 410 415  
 His Ser Leu Val Glu His Leu Glu  
 420  
 55  
 <210> 20  
 <211> 19053  
 <212> DNA  
 <213> Myxococcus xanthus  
 60  
 <400> 20

El  
 Cont

5 gtcgacgttg acgtcgcccc gtggcggtgcc gtgtgtcttc ttcgacgcgg aggtgcgcg 60  
 ggtggcgccg gacggccggc gcgggcccgt gttgtcgcgt gagcgcgct atgcgcgggt 120  
 actggcgctg cgtggccagc gcctccatgc ttcgggtgtc ttttcgcccc cgtcgtgat 180  
 ggctccggtg gaggtgcgcc ggtgcaaggc cctgccaggc acggtgcccc cgtcctggta 240  
 tcagacggcg caccgcggagg ccctgtcctg ggagcgcggtg ggcgcgggtg gcgaatcctg 300  
 cctcgtggtg ggtgaaactc ggagggggccc tgtcgagggc agctacgccc tggtcggtcg 360  
 ggagggcgcc cccgcgatgt tgggtgctggg accccaggct ccggccacct gtgggacgct 420  
 ggcgcgcggc gcctggcgcc acttcgcggc ggccgggggtg ctgtccatgg ccgcgccgt 480  
 10 cgtcctgtca ggggcgctgt gagacgcgcg gcggggggccg taccgcccgc ccagaaacgt 540  
 gatgcgcgcg caggcctcgc ggtccgggca ctgacgccc ggccgctcgg gactcgctca 600  
 ggccgctccg gtgcttcgcg cgggtggagaa cacgagctgt tcctcgtgt ccgccaccgc 660  
 cacggtgagg gtccgctcca cgccggcgag gccagcgcc gtggactgcg ccaggctcga 720  
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 gaacacggtg cgcagctcgt ccggggcctt gcggttcgtg atggcgcgcc gcaggcgcc 840  
 15 catgccgctc acgaagtcc tgcaccgcat gagcgtgttg gggttcttgg agatgacctc 900  
 cgcaagctg aagttgcgc caccggggcg cactcgcct tcgatgagct gcaggctcct 960  
 gccaaggtcg cgcaccgtgg ggtccttctg gaagtaccac ttggcgatct gcgcggcgcg 1020  
 gctgggtgac aagtcattca gcatgaggct gccttgctcc tgcacctgc ggaggtaggc 1080  
 ctcccagatg gggcgctaga ccgcgcgcgc gaactcgccg gaggcgcgcc gaagctgctc 1140  
 20 gctccagggc agcgcgcgcc ccaggggcg tgagaagcgg gacagctcga gctctggat 1200  
 gcggggcacc agggcgcgga acgagtcac cgccatcttc agctcgagcc gcgtttcgat 1260  
 ggggtgcttg cccatgtcct cctgcatggt gctgatgac gtggcccgct ccttcgcgtc 1320  
 cagcacgccc cagacgacgg cgtcatccac cgctgctgc aggtccttgc gcgacagctt 1380  
 cttctgccgt cccacagca tcagggtgcag gccgtagccg aagtcggagg ccacgggggt 1440  
 25 gggagagaag cgcgtcatgt ccgccttcag gtccaccacc cactggccgc ggggtgccag 1500  
 cagcttgctc tcgtagcccc ggctcgcag gaacgccatg cgccggggcg cctggaagt 1560  
 ctctgctgc acccaggact gcttgcgtgac gttcttcgcc ttgagcagct cgaacgagcc 1620  
 cagccccagt gagaagccga tgccctgctg gcgcgtgagc gtgggtggct gcaggtagtt 1680  
 gcgcagctcg aactcgtct gctggggcgg gaggctcttc atccacttca gcagctccac 1740  
 30 caggttgccc ttgagcaggg actcgtggaa gcgcatecgc gtgacgtcct ccacgacgac 1800  
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E!  
 Ent

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|    | tctcgtcgat  | gaacacggtg  | ccgcgcgtgg  | ccgcttcgaa  | cttgccgggc  | acgcggtggt  | 3840 |
|    | ccgcgcgggt  | gaaggcgccg  | cgttcgtggc  | cgaagagctc  | gttctcgatg  | agcgtggcgg  | 3900 |
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|    | ccgtcatccg  | gtcgatgtcc  | gcgaagaagc  | gctgctcgcc  | gcgcgggtcc  | ggcacgttga  | 4380 |
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|    | ggaacgcgtc  | gaggtccacc  | tccctgccga  | cgagtcctcc  | gaaggggagg  | aggacctggg  | 4620 |
|    | agacgtccga  | gggggcttgg  | ggcatggcgg  | gcaacggcgg  | caggacgaag  | gcggaggccg  | 4680 |
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|    | ccgctggcct  | tcgcgtgcgg  | gctcgcacac  | ggggaagagg  | gcgcgggcct  | gctccgccat  | 4800 |
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|    | cgtctggggt  | ctgggaatgc  | gcggccttcc  | gttcaactcca | gagtgattca  | atggctctcg  | 5940 |
|    | agtgcagggt  | tagcaatcct  | cgggcggtaa  | ccacgcggtt  | gaaggcagtc  | acgtctctcg  | 6000 |
| 40 | cacgcttggg  | gtgtttccag  | cttcaacggg  | gtttatcctt  | cagggcggtt  | tgcttgacac  | 6060 |
|    | gctgcctcat  | ggaagcgtat  | gcaaaacaat  | gaaaacgggtg | tcgttgccga  | gccttagggc  | 6120 |
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|    | tttgaacgca  | aggatgcggc  | gggggttgtg  | gcggcagccc  | gaccagaatt  | cggttggtgt  | 6240 |
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|    | tggtggacgt  | ccttcacgcg  | aggctgtgag  | gcgaagccat  | ggggccgggtc | gggattgaag  | 7140 |
|    | ccatgaatgc  | ctactgtggc  | atcgccagg   | tggtgtgtgt  | gcagctggcg  | accacccgtg  | 7200 |
| 60 | gcctggacac  | ctcccgtctc  | gcgaacctgc  | tcattggagga | gaagaccgtc  | ccgctccctt  | 7260 |
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E1  
Cont  
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|    | tcgagctcaa  | gagcgccctgc | tactccgggg  | tcgcccgggct | gcagatggcc  | gtcaacttca  | 7500  |
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|    | tgggggcgaa  | cggctactac  | ggctacgagg  | tgatggatac  | ctgcccggccg | gtggcggaaca | 7740  |
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|    | cttcgctgtc  | tggttccaac  | gaagaaccgg  | gacgtggacg  | tggagcgcta  | cctcccgtcg  | 10800 |
|    | gtgacgcgga  | cggcgagccg  | cccgcgcagt  | ctcgccttgc  | gaagggctcg  | ggactatcat  | 10860 |
| 60 | cgtagctacg  | agtgggtgta  | gctcatacgc  | cacctccaat  | tcggacgaat  | gaacactcct  | 10920 |
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E1  
Cont.  
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|    |             |             |             |            |             |             |       |
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|    | gtccggctgc  | tgagaccact  | gaatgtccac  | ctcacctgtg | caggagctgg  | ttgtctcggg  | 15000 |
|    | gttcgggggtc | acctccgcca  | ttggccaggg  | ggccgcgtcc | ttcacctcgg  | cgctgctgga  | 15060 |
|    | gggcgcgcca  | cggttccggg  | tgatggagcg  | gcccggccgt | cagcatcagg  | ccaacgggca  | 15120 |
|    | gacgacggcc  | cacctggggg  | cggaaatcgc  | ctcgctggcc | gtgcccgaag  | gcgtaccccc  | 15180 |
| 10 | acaactgtgg  | cgctcggcca  | cgttttcggg  | gcaggccgca | ctggtgaccg  | tccacgaggc  | 15240 |
|    | ctggaacgcg  | gcgcgcctcc  | aggccgtccc  | cggacacccg | attggattgg  | tggtgggggg  | 15300 |
|    | caccaacgtg  | cagcagcgcg  | acctggtgct  | gatgcaagac | gcctatcgcg  | agcgggtgcc  | 15360 |
|    | ctttctgctg  | gcggcctacg  | ggtcgacctt  | catggacacc | gacctcgtgg  | gcctctgcac  | 15420 |
|    | gcagcagttc  | gccatccacg  | ggatgtcctt  | cacgggtggg | ggcgcatcgg  | ccagtggcct  | 15480 |
| 15 | gctggcggtc  | atccaggccg  | cggaggcggt  | gctctcaaga | aggggtggacg | tttgcatcgc  | 15540 |
|    | cgtggggggcg | ctgatggacg  | tctcctactg  | ggaatgccag | ggcctgcggg  | ccatggggcg  | 15600 |
|    | gatgggcacc  | gaccggttcg  | cgcgggagcc  | ggagcgtgcc | tgccggccct  | tcgaccggga  | 15660 |
|    | gagtgatggc  | ttcatctttg  | gagaggcggt  | cggcgccgtg | gtggttgagt  | ctgcggagca  | 15720 |
|    | cgctcggcga  | cgcgggggtg  | ctcctcgccg  | catcctgtcg | ggctggggcca | tgcatgtgga  | 15780 |
| 20 | cgcgagccgc  | ggcccgttgt  | cgtccatcga  | aggggagtcg | cagggtgattg | gggctgcgct  | 15840 |
|    | gcggcacgcg  | gacctcgcgc  | cggagcgggt  | ggactacgtg | aatcctcacg  | gcagcggttc  | 15900 |
|    | gcgtcagggg  | gatgccatcg  | agctgggggg  | cttgaaggcg | tgccggcctga | cgcacgcccc  | 15960 |
|    | ggtcaacacc  | acgaagtcca  | tcaccgggca  | tggcctgtcc | tcggcggggtg | ccgtgggggt  | 16020 |
|    | catcgccacg  | ctgggtccagt | tggagcaggg  | ccggctgcac | ccgtccttga  | acctggtgga  | 16080 |
| 25 | cccgattgat  | tcategttcc  | gctgggtggg  | ggccaccgcg | gaggcccagt  | ccctccagaa  | 16140 |
|    | cgcgctgggt  | ctcgccctacg | gcttcggcgg  | catcaacacc | gctgtcgccg  | tgccgcccag  | 16200 |
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|    | cgctccgggt  | ccgcttcgag  | gcgcagacct  | gttttttcca | gctccaccgg  | ccggatgcgg  | 16320 |
|    | acaacaccat  | cagccgcacg  | ctgattgacg  | agtgccagca | ggtgctcacg  | ttatgtgagg  | 16380 |
| 30 | agcacgccac  | cacggtgggt  | ctcgaaggcc  | tgccacacgt | gttctgcatg  | ggcgcggtat  | 16440 |
|    | ttcgagccat  | ccacgaccgg  | gtcgacgacg  | gcccgcggga | gcaaggcaac  | gcggagcagc  | 16500 |
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| 35 | cgttcctcgc  | ccggcgcaatc | ggcatccagc  | gggcgcacta | cctgacgctg  | atgacgcggc  | 16740 |
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| 45 | ctacagcctc  | gcgctggagt  | gcgacatccc  | ggtgatttcc | gccatgcagg  | gacatggcgt  | 17340 |
|    | aggcgggcgg  | ttcgcgatgg  | ggctgttcgc  | ggacttcgtg | gtcctgagcc  | gggagagcgt  | 17400 |
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|    | cggcgccgac  | ctgggagaagc | ggggcggtgc  | ttttccgggt | tgcccgcgca  | aggaagtctt  | 17580 |
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|    | gctggagatg  | cacggcatca  | ccttccatca  | cgacgacgtg | aggaggcgca  | tcgagcagct  | 17760 |
|    | gttcccttga  | ggcgcgcccc  | tatgttgaac  | ctgatcaaca | accacgcaca  | cggttatgtg  | 17820 |
|    | gtcacgcceg  | tggtcctggc  | ctgcaacgac  | gctggcctgt | tcgaactcct  | gcggcagggg  | 17880 |
| 55 | ccgaaggact  | tcgaccgggt  | ggcggaggca  | ttgcgtgcca | accgggggaca | tctgcgcgtc  | 17940 |
|    | gcgatgagga  | tgttcgaatc  | gctcggctgg  | gttcgcgcgg | acgcggatga  | cgtgtacgcg  | 18000 |
|    | gtgacggcgg  | cggcgggcgc  | gcacgggtcc  | ttcccccgcg | aggcgagtc   | gctcttcgcg  | 18060 |
|    | ctgcccattg  | accggtacct  | gcgcggggag  | gacggcctgt | ccctggcgcc  | gtggttcgag  | 18120 |
|    | cgctctcggg  | cgctcgtggg  | taccgatgac  | acgctggtgc | gcgagctgct  | cgacggcgcc  | 18180 |
| 60 | atcatcacgc  | cgctgatgct  | cgcgctggag  | cagcgtgggg | gcctcaagga  | ggcgaggcgt  | 18240 |
|    | ctgtccgacc  | tgtggtccgg  | gggggatgga  | agggacacgt | gcgtccccga  | ggccgtccaa  | 18300 |

E1  
cont

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15

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